

- A1  
Cont
- SUB D1  
Cont
- (a) obtaining DNA profile data that include a mixed DNA sample;
  - (b) representing the data and a genotype contained in the DNA mixture in a set of linear equations;
  - (c) deriving a mathematical solution from the linear equations; and
  - (d) determining the genotype from the solution.
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A2

19 AMENDED

A method as described in Claim 17 wherein the representing step (b) includes a matrix or vector representation of the set of linear equations.

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21 AMENDED

A method as described in Claim 17 wherein the deriving step (c) includes performing a matrix operation on the linear equations.

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A3

22 AMENDED

A method as described in Claim 17 wherein the determining step (d) produces an estimate of the genotype of an individual.

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Please add the new claims 23-30 as follows:

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SUB D2

23. A method as described in Claim 17 wherein the determining step (d) produces an estimate of a proportion or weight of an individual's DNA contained in the mixed DNA sample.

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A4

24. A method as described in Claim 17 wherein the determining step (d) produces an estimate of the quality of the determined solution.

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25. A method as described in Claim 19 wherein the matrix representation has a term that includes a matrix multiplication of a genotype matrix and a weight matrix.

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26. A method as described in Claim 22 wherein after the determining step (d), the estimated genotype is matched against a suspect genotype.

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27. A method as described in Claim 26 wherein the suspect genotype is drawn from a database of candidate suspect genotypes.

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